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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/017,455 | 12/13/2001 | Densen Cao | 5061.3 P | 6763 |

7590 12/28/2004

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| EXAMINER |
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LEWIS, RALPH A

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| ART UNIT | PAPER NUMBER |
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3732

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/017,455 | Applicant(s) CAO, DENSEN | |
| | Examiner Ralph A. Lewis | Art Unit 3732 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-11, 13-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Finality of 04/13/2004 Office Action Withdrawn

The Finality of the 04/13/2004 Office Action is withdrawn in view of the new grounds of rejection on previously allowed claims.

Provisional Statutory Double Patenting Rejection

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7-10 and 13-17 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 7-10 and 13-17 of copending Application No. 10/016,992. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Rejections based on Prior Art

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 18, 22 and 24 are rejected under 35 U.S.C. 102(a) as being anticipated by Mills (WO 99/16136).

In regard to claim 18, Mills discloses a dental curing light (page 1, second paragraph) comprised of a hand held wand (Figure 5) having a primary heat sink 48, light emitting semiconductors 43 mounted to the primary heat sink 48, and elongated secondary heat sink 45. Light guide 41 directs light emitted from the LED's 43 at an angle from the elongated heat sink 45 that appears to be about 30°-45°. The light traveling from the "curing light" travels at an angle set by the light guide.

In regard to claims 22 and 24, the light emitted directly by the Mills LED's is primarily in a forward direction to the light guide 41, it is how the Mills et al is designed to operate. However, it is noted, as is taught by Doiron et al (US 5,698,866) (see Figures 11 and 12) and applicant (note Figures 20a, 21a) that a small amount of incident light is emitted outwardly at an angle. Applicant's claimed "at least some light" limitation would include within its scope this emitted incidental light. Secondly, it is noted that in Mills, light that has been "emitted by said light emitting semiconductor device" is eventually emitted from the light guide 41 at an angle to the longitudinal axis of the elongated heat sink.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-11, 18, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills (WO 99/16136)

In regard to claim 18, Mills fails to explicitly disclose the angle of light guide 41, however, one of ordinary skill in the art would have found it obvious to have provided for an angle within the range claimed. In regard to claims 1, 7 and 21, Mills does not explicitly appear to state that the disclosed dental photo curing device has an on/off switch (i.e. "controls for initiating and terminating light transmission" and "circuitry in electrical connection with said controls" as required). The use, however, of a conventional on/off switch to turn the device on and off when being used would have most certainly been obvious to the ordinarily skilled artisan.

Claims 13-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills (WO 99/16136) in view of Doiron et al (5,698,866).

In Mills the LEDs are mounted directly on a flat heat sink 48. Doiron et al, however, teach that an improvement over mounting diodes on a flat surface (Figures 9 and 10) is mounting them in a well (Figures 11 and 12) formed on the heat sink so that more light from the LEDs is reflected forward in the desired direction. To have mounted the Mills LEDs in wells as taught by Doiron et al so that more light is reflected forward in the desired direction would have been obvious to one of ordinary skill in the art.

Allowable Subject Matter

The examiner suggests the following (or similar) amendment to clearly distinguish the claimed device from the prior art of record and place the application in condition for allowance:

“ . . . light directly emitted by the light emitting semiconductor device will be emitted forward from the light emitting semiconductor device at an angle of from about 30 degrees to about 150 degrees to said elongated heat sink longitudinal axis.”

The “directly” limitation is intended to exclude from within its scope interpretations where the “emitted light” is eventually emitted from an angled light guide as that of Mills at 41. The “forward from the light emitting semiconductor device” limitation is intended to exclude from within its scope interpretations of incidental light that is emitted from the semiconductor at an angle as that disclosed by Doiron et al (US 5,698,866) (see Figures 11 and 12) and applicant (note Figures 20a, 21a).

Contact Information


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

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direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(571) 272-4712**. Fax (703) 872-9306. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Kevin Shaver, can be reached at (571) 272-4720.

R.Lewis
September 02, 2004



Ralph A. Lewis
Primary Examiner
AU3732